NOTES FROM PACIFIC COAST OBSERVATORIES.

Note on the Color of the Faint Stars in the Orion Nebula.

A series of comparisons of the magnitudes of the stars in the *Orion* nebula with those of the North Polar Sequence has been made with the 60-inch reflector in order to determine the relative color of the bright and faint stars. Provisional photographic and photovisual magnitudes have thus been secured for nearly a hundred stars in and near the central part of the nebula. The exposures on the two kinds of plates were made in close succession so as to avoid errors due to the possible magnitude changes of the many known and suspected variables. Diaphrams were used to reduce the magnitudes of the brighter stars sufficiently for direct comparison with the fainter ones in the same field. For nine stars whose magnitudes are between 6 and 9 and whose spectra are between B8 and A2, the average color index was found to be + 0.04 mag. For 33 stars for which the photographic magnitude is between 11 and 16, the average color index is + 0.68 magnitude. Of these 33 faint stars, only six have color indices less than half a magnitude. Only two have negative values, and for both of these the magnitudes are of low weight because of considerable distance from the center of the plate. Most of the faint stars so far investigated are in the thinner parts of the nebula between θ_1 *Orionis* and c *Orionis*. As yet there is no indication, however, that the color indices are greater or less in the denser nebulosity.

The large value of the color index suggests either that these faint stars are of redder spectral type (solar type on the aver-

age) or that an abnormal space absorption is present, or that both these factors affect the colors. There is the possibility also of a color effect from absolute luminosity, but if such be the case it must be in the opposite direction from that found by ADAMS. If absorption is the chief cause, then, since the color index of the nine bright stars investigated is normal for spectral type A, the faint stars must be much more distant than the brighter ones, and therefore probably not connected with the predominating group of bright *Orion* stars in this region. It seems more likely, however, that there is no conspicuous absorption peculiar to the nebula itself, and that the colors of the faint stars are to be accounted for in the same way as redness of faint stars in other parts of the sky. In any case there seems to be no definite evidence for associating the fainter stars in this vicinity with the *Orion* nebula. The average redness found for these stars is slightly less than that found by SEARES for stars of the same magnitudes near the north pole. The galactic latitude of the latter region is ten degrees greater.

HARLOW SHAPLEY.

MOUNT WILSON SOLAR OBSERVATORY, January, 1915.

THE MARTIN KELLOGG FELLOWSHIP.

Mr. C. E. ADAMS (M. S., University of New Zealand), Government Astronomer of New Zealand, has been appointed Martin Kellogg Fellow in the Lick Observatory. Mr. ADAMS has been granted leave of absence by his government, and will spend his time at Mount Hamilton and engage principally in astrophysical studies.